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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,555	12/28/2005	Yutaka Murakami	L9289.05195	8225
53989 7590 01/22/2009 Dickinson Wright PLLC James E. Ledbetter, Esq. International Square 1875 Eye Street, N.W., Suite 1200 Washington, DC 20006				
EXAMINER				
KASSA, ZEWDU A				
ART UNIT		PAPER NUMBER		
2611				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/562,555

**Applicant(s)**

MURAKAMI ET AL.

**Examiner**

ZEWDU KASSA

**Art Unit**

2611

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S508)
- Paper No(s)/Mail Date 12/28/2005
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami (US 2004/0121827 A1) in view of Tirkkonen (US 2004/0131041 A1) and Kim (US 20040132496 A1).**

3. As per claim 11, Murakami teaches a transmission apparatus comprising a plurality of transmission antennas (Murakami, Fig.31 item 110 120); a transmission method determining section that determines any one of a first transmission method of transmitting a plurality of signals including the same data from the plurality of antennas and (Murakami, Fig.31 item 121, Fig.35 Para [0327]); a modulation scheme determining section that determines any one of a plurality of modulation schemes (Murakami, Fig.31 item 121, Para [0078]); and a transmission processing section that transmits the signals to which said determined transmission method and

modulation scheme are applied from said plurality of antennas (Murakami, Fig. 31 item 102,1001,106, 112, 1003, 116).

4. Murakami does not explicitly teach a second transmission method of transmitting a plurality of signals including different data from the plurality of antennas. Tirkkonen teaches a second transmission method of transmitting a plurality of signals including different data from the plurality of antennas (Tirkkonen, Para [0044] "...C (s1, s2, s3, s4) ..." Fig.3 item 302, 312). Thus, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to implement a second transmission method of transmitting a plurality of signals including different data from the plurality of antennas, as taught by Tirkkonen, in the apparatus of Murakami, because Murakami teaches transmitting a plurality of signals including the same data from the plurality of antennas in general (Murakami, Fig.31 item 121, Fig.35 Para [0327]) and Tirkkonen teaches and suggests a benefit of a second transmission method of transmitting a plurality of signals including different data from the plurality of antennas that would achieve a higher transmission rate (Tirkkonen, Para [0009], Para [0044] "...C (s1, s2, s3, s4) ..." Fig.3 item 302, 312).

5. Murakami does not explicitly teach a control section that controls whether determining processing by said transmission method determining section and modulation scheme determining section should be performed or not in accordance with the procedure for a communication with the other communication party. Kim teaches a control section that controls whether determining processing by said transmission method determining section and modulation scheme determining section should be performed or not in accordance with the procedure for a communication with the other communication party (Kim, Para [0025] "an adaptive transmit controller", Fig.1 item 111). Thus, it would have been on one having ordinary skill in the art at the time the invention was made, to implement a control section, as taught by Kim, in the apparatus of Murakami, because Murakami teaches a control section that controls a transmitting apparatus based information received from receiving apparatus (Murakami, Para [0010]) and Kim teaches the benefit of a controller section that controls the performance of the transmitting apparatus adaptively so that different transmission methods and modulation schemes can be configured as desired and provides a more flexible transmitting apparatus (Kim, Para [0012][0029]).

6. As per claim 12, Murakami in view of Tirkkonen and Kim teaches the transmission apparatus according to claim 11, wherein said control section

performs control in such a way that the transmission method determining section does not perform determining processing during data transmission and only the modulation scheme determining section performs determining processing (Kim, Para [0047] "controller").

7. As per claim 13, Murakami in view of Tirkkonen and Kim teaches the transmission apparatus according to claim 11, wherein said transmission processing section adopts a modulation scheme having the same maximum value of the number of modulated M-ary index for the modulation scheme used for said first transmission method and the modulation scheme used for said second transmission method (Kim, Fig. 3, wherein different transmission method and modulation scheme used).

8. As per claim 14, Murakami in view of Tirkkonen and Kim teaches the transmission apparatus according to claim 11, wherein said transmission method determining section predetermines the transmission method to be used at the start of a communication and said modulation scheme determining section predetermines the modulation scheme to be used at the start of a communication (Murakami, Para [0078] "... modulation unit ... frame configuration ...").

9. As per claim 15, Murakami in view of Tirkkonen and Kim teaches the transmission apparatus according to claim 11, wherein said control section performs control in such a way that said transmission method determining section performs determining processing at longer time intervals than said modulation scheme determining section performs determining processing (Kim, Fig. 3 item 340 350 – wherein it shows while the modulation scheme varied, the transmission method remain the same i.e the transmission method changed in longer interval than the modulation scheme).

10. As per claim 16, Murakami in view of Tirkkonen and Kim teaches the transmission apparatus according to claim 11, wherein said transmission method determining section uses cyclic delay diversity as said first transmission method (Tirkkonen, Para [0046] “delay diversity”).

11. As per claim 17, Murakami in view of Tirkkonen and Kim teaches the transmission apparatus according to claim 11, wherein said transmission method determining section uses an eigenmode in which singular vectors or eigen vectors of a channel matrix in an MIMO system are used as channel signature vectors as said first transmission method (Murakami, Para [0100] [0102] “eigenevalue”).

12. As per claim 18, Murakami in view of Tirkkonen and Kim teaches the transmission apparatus according to claim 17, wherein said transmission method determining section switches between said first transmission method and said second transmission method in accordance with the number of other communication parties (Kim, Para [0025] "... controller ... according to a characteristic of MIMO channel" wherein the condition of the channel is communicate from the other party).

13. As per claim 19, Kim teaches a reception apparatus comprising: a transmission method determining section that determines any one of a first transmission method of transmitting a plurality of signals including the same data from a plurality of antennas and (Kim, Para [0021] "... classified according to main transmit mode ...") ; a modulation scheme determining section that determines any one of a plurality of modulation schemes (Kim, Para [0021] "... a modulation method ...); a control section that controls whether the determining processing by said transmission method determining section and modulation scheme determining section should be performed or not in accordance with the procedure for a communication with the other communication party (Kim, Para [0021] "... modulation method, and an antenna transmit method determined ..."); and a requesting section that requests the determined transmission method and



modulation scheme from the other communication party (Kim, Para [0021]  
] "... classified according to according to main transmit mode ...").

14. Kim does not teach explicitly a second transmission method of transmitting a plurality of signals including different data from the plurality of antennas. Tirkkonen teaches a second transmission method of transmitting a plurality of signals including different data from the plurality of antennas. (Tirkkonen, Para [0044] "...C (s1, s2, s3, s4) ..." Fig.3 item 302, 312). Thus, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to implement a second transmission method of transmitting a plurality of signals including different data from the plurality of antennas, as taught by Tirkkonen, in the apparatus of Kim, because Kim teaches transmitting a plurality of signals including the same data from the plurality of antennas in general (Kim, Para [0021] "... classified according to main transmit mode ...") and Tirkkonen teaches and suggests a benefit of a second transmission method of transmitting a plurality of signals including different data from the plurality of antennas that would achieve a higher transmission rate (Tirkkonen, Para [0009], Para [0044] "...C (s1, s2, s3, s4) ..." Fig.3 item 302, 312).

15. As per claim 20, Kim in view of Tirkkonen teaches the reception apparatus according to claim 19, wherein said control section performs control in such a way that the transmission method determining section does not perform determining processing during data reception and only the modulation scheme determining section performs determining processing (Kim, Para [0047] "controller").

16. As per claim 21, Kim in view of Tirkkonen teaches the reception apparatus according to claim 19, further comprising a channel fluctuation estimation section that estimates both or any one of a channel fluctuation and reception field intensity of the received signal (Kim, Fig.1 item 134), wherein said transmission method determining section determines the transmission method based on the estimation result estimated by said channel fluctuation estimation section (Kim, Fig.3 item 135, Para [0059]).

17. As per claim 22, Kim in view of Tirkkonen teaches the reception apparatus according to claim 19, wherein the modulation scheme used for said first transmission method and the modulation scheme used for said second transmission method adopt the same maximum value of the number of modulated M-ary index (Kim, Fig. 3 –wherein different transmission method and modulation scheme used).

**18. *"In re claim 1-9 Murakami in view of Tirkkonen and Kim discloses a transmission method because under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claims, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324,231 MPEP 2112.02"***

***Allowable Subject Matter***

19. Claims 10 is allowed.

***Conclusion***

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZEWDU KASSA whose telephone number is (571)270-5253. The examiner can normally be reached on Monday - Friday (7:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571 272 3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

zk

/David C. Payne/  
Supervisory Patent Examiner, Art Unit 2611